REMARKS

Claims 16 and 17 are added and therefore claims 6 to 8 and 11 to 17 are pending and being considered in the present application (since claims 9 and 10 were previously withdrawn in response to a restriction action).

In view of the following, it is respectfully submitted that all of the presently pending claims are allowable, and reconsideration is respectfully requested.

With respect to paragraph five-point-one (5.1) of the Final Office Action, claims 6 to 8 were rejected under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent No. 4,063,237 ("Nier"), in view of UK Patent Application No. GB2317256 ("Winner").

Claim 6 relates to a method for a motor vehicle having an adaptive distance and speed control for lane allocation of vehicles on multi-lane roads, including the feature of *carrying out the lane allocation in a model-based manner via a frequency distribution of lateral displacements of detected radar objects* by: *correlating the frequency distribution with one of (a) stored models for frequency distributions of lateral displacements, relating to lane allocation for multi-lane roads* having a defined width and *(b) characteristic lateral displacement histograms for different lanes* used by a succeeding vehicle; and *outputting a model part having a highest correlation to the frequency distribution as a lane hypothesis.*

The Nier reference does not disclose (or even suggest) the feature of *carrying out the lane allocation in a model-based manner via a frequency distribution of lateral displacements of detected radar objects.* The Final Office Action at page 2 essentially admits this deficiency of the Nier reference. The Nier reference merely refers to a distance measuring system "to measure the spacing between a leading and a trailing vehicle ... in a single traffic lane." (Nier, col. 2, lines 1 to 6 (emphasis added)). Also, the Nier reference indicates that "[o]nly those signals are processed in the system of the present invention which are re-radiated or reflected by a leading vehicle in the same traffic lane." (Nier, col. 5, lines 41 to 44 (emphasis added); and col. 6, lines 25 to 28). Further, the Nier reference specifically states that "[v]ehicles travelling in lanes other than those in which the measuring vehicle is located are ... not considered in the signal processing." (Nier, col. 2, lines 22 to 25; and col. 5, lines 38 to 41). In addition, the Nier reference merely refers to measuring spacing between a leading and a trailing vehicle in a single traffic lane. (Nier, col. 2, lines 46 to 66; and col. 5, line 23 to col. 6, line 41). Indeed, as quoted above, the Nier reference specifically states that it does not even process signals from laterally displaced, detected radar objects, but only processes signals from a leading vehicle in the same traffic lane. Therefore, the Nier

reference does not disclose (or even suggest) the feature of *carrying out the lane allocation in a model-based manner via a frequency distribution of lateral displacements of detected radar objects*, as provided for in the context of claim 6.

In addition, the Nier reference does not disclose (or even suggest) the feature of *correlating the frequency distribution with one of (a) stored models for frequency distributions of lateral displacements, relating to lane allocation for multi-lane roads* having a defined width and *(b) characteristic lateral displacement histograms for different lanes* used by a succeeding vehicle. The Final Office Action at pages 2 to 3 also essentially admits this deficiency of the Nier reference. As explained above, the Nier reference merely measures vehicle spacing in a single traffic lane, and does not disclose a frequency distribution of lateral displacements of detected radar objects. Thus, the Nier reference also does not disclose *correlating a frequency distribution*. Further, the Nier reference does not disclose *stored models for frequency distributions of lateral displacements*, or *characteristic lateral displacement histograms*. The Final Office Action again asserts that the Nier reference discloses this feature by referring to Table 1 of the Nier reference. (Final Office Action, p. 3).

However, Table 1 of the Nier reference merely shows an example of possible signal frequencies of the two oscillators (68, 92) depending on the traffic lane, which allows the receivers of the Nier reference to distinguish between transmitted signals from different traffic lanes. (Nier, col. 6, lines 38 to 41; and col. 7, Table 1). Nowhere does the Nier reference indicate stored models for frequency distributions of lateral displacements, or characteristic lateral displacement histograms. Thus, Table 1 of the Nier reference plainly is not a stored model for frequency distributions of lateral displacements. Therefore, the Nier reference does not disclose (or even suggest) the feature of *correlating the frequency distribution with one of (a) stored models for frequency distributions of lateral displacements, relating to lane allocation for multi-lane roads* having a defined width and *(b) characteristic lateral displacement histograms for different lanes* used by a succeeding vehicle, as provided for in the context of claim 6.

Further, the Nier reference does not disclose (or even suggest) the feature of *outputting a model part having a highest correlation to the frequency distribution as a lane hypothesis*. The only output signal indicated by the Nier reference is a measured distance to a leading vehicle in the same traffic lane. (Nier, col. 6, lines 51 to 61). Nowhere does the Nier reference disclose outputting a model part having a highest correlation to the frequency

distribution. Further, nowhere does the Nier reference disclose outputting a lane hypothesis. In fact, a lane hypothesis is unnecessary to the Nier reference since it only measures distances in a single traffic lane. Therefore, the Nier reference does not disclose (or even suggest) the feature of *outputting a model part having a highest correlation to the frequency distribution as a lane hypothesis*, as provided for in the context of claim 6.

The Final Office Action asserts the Winner reference to cure the critical deficiencies of the Nier reference. However, it is respectfully submitted that the Winner reference does not cure the critical deficiencies of the Nier reference.

The Winner reference does not disclose (or even suggest) the feature of *carrying out the lane allocation in a model-based manner via a frequency distribution of lateral displacements of detected radar objects*. The Winner reference merely refers to detecting whether right-hand or left-hand traffic flow prevails in a traffic environment. In addition, the Winner reference merely refers to creating a bar graph frequency distribution of oncoming vehicles based on a lateral distance. (Winner, Abstract; and pp. 2 to 3). However, contrary to the assertion of the Final Office Action at page 2, the Winner reference does not disclose *carrying out a lane allocation in a model-based manner*. Instead, the Winner reference merely determines whether right-hand or left-hand traffic flow prevails, but does not carry out a lane allocation in a model-based manner. Therefore, the Winner reference does not disclose (or even suggest) the feature of *carrying out the lane allocation in a model-based manner via a frequency distribution of lateral displacements of detected radar objects*, as provided for in the context of claim 6.

In addition, the Winner reference does not disclose (or even suggest) the feature of *correlating the frequency distribution with one of (a) stored models for frequency distributions of lateral displacements, relating to lane allocation for multi-lane roads* having a defined width and *(b) characteristic lateral displacement histograms for different lanes* used by a succeeding vehicle. As stated above, the Winner reference merely refers to creating a bar graph frequency distribution of oncoming vehicles based on a lateral distance. (Winner, Abstract; and pp. 2 to 3). In addition, the Winner reference merely refers to designating a center of gravity S of the bar graph, and evaluating the position of the center of gravity S with respect to a reference value to identify left-hand or right-hand traffic flow. (Winner, pp. 7 to 9). However, contrary to the assertion of the Final Office Action at pages 2 to 3, the Winner reference does not disclose correlating the created bar graph with stored models, or characteristic histograms. Indeed, the Winner reference does not even disclose

stored models for frequency distributions of lateral displacements, or characteristic lateral displacement histograms. Thus, the Winner reference merely refers to comparing a center of gravity S of the created bar graph to a reference value to determine a traffic flow direction, but does not disclose correlating the frequency distribution with stored models, or characteristic histograms to carry out a lane allocation. Therefore, the Winner reference does not disclose (or even suggest) the feature of *correlating the frequency distribution with one of (a) stored models for frequency distributions of lateral displacements, relating to lane allocation for multi-lane roads* having a defined width and *(b) characteristic lateral displacement histograms for different lanes* used by a succeeding vehicle, as provided for in the context of claim 6.

Further, the Winner reference does not disclose (or even suggest) the feature of *outputting a model part having a highest correlation to the frequency distribution as a lane hypothesis*. The only output indicated by the Winner reference is a determination of the traffic flow direction. (Winner, p. 9). Thus, contrary to the assertion of the Final Office Action at page 3, the Winner reference does not disclose outputting, as a lane hypothesis, a model part having a highest correlation to the frequency distribution. As explained above, since the Winner reference does not even refer to correlating its bar graph to stored models or characteristic histograms, the Winner reference also does not disclose outputting a model part having a highest correlation. Thus, the Winner reference merely refers to outputting a determination of traffic flow direction, but does not disclose outputting, as a lane hypothesis, a model part having a highest correlation to the frequency distribution. Therefore, the Winner reference does not disclose (or even suggest) the feature of *outputting a model part having a highest correlation to the frequency distribution as a lane hypothesis*, as provided for in the context of claim 6.

Moreover, since the Nier reference processes signals only from a leading vehicle in the same traffic lane and specifically seeks to ignore signals from vehicles in other lanes, the Nier reference plainly teaches away from any proposed combination with the Winner reference, which specifically measures vehicles in oncoming traffic lanes in order to determine a traffic flow direction.

Therefore, the proposed combination of the Nier and Winner references does not disclose (or even suggest) the features of *carrying out the lane allocation in a model-based manner via a frequency distribution of lateral displacements of detected radar objects*; *correlating the frequency distribution with one of (a) stored models for frequency*

distributions of lateral displacements, relating to lane allocation for multi-lane roads having a defined width and *(b) characteristic lateral displacement histograms for different lanes* used by a succeeding vehicle; and *outputting a model part having a highest correlation to the frequency distribution as a lane hypothesis.*

Accordingly, it is respectfully submitted that claim 6 is allowable for at least the reasons provided above.

Claim 7 includes features similar to those of claim 6. Specifically, claim 7 relates to a device, including the feature of *a lane allocation arrangement for carrying out a lane allocation in a model-based manner via a frequency distribution of lateral displacements of detected radar objects*, and *a correlating arrangement for correlating a determined frequency distribution with one of (a) stored models for frequency distributions of lateral displacements, relating to lane allocation for multi-lane roads* having a defined width and *(b) characteristic lateral displacement histograms for different lanes* used by a succeeding vehicle.

Accordingly, it is respectfully submitted that claim 7 is allowable for essentially the same reasons provided above. Claim 8 depends from claim 7 and is therefore allowable for at least the same reasons as claim 7.

With respect to paragraph five-point-two (5.2) of the Final Office Action, claim 11 was rejected under 35 U.S.C. § 103(a) as unpatentable over the Nier reference, in view of the Winner reference.

Claim 11 also includes features similar to those of claim 6. Specifically, claim 11 relates to a method for performing lane allocation of consecutive vehicles on a multi-lane road, including the features of *determining lateral displacements of radar sensor detected objects relative to a longitudinal vehicle axis*, in which *the lane allocation is implemented in a model-based manner via a frequency distribution of the lateral displacements of the radar sensor detected objects*; *determining a histogram of a frequency distribution of the lateral displacements*; *correlating the histogram to stored lane models*; and *detecting an instantaneously driven lane of the multi-lane roadway based on a lane model having a greatest correlation to a laterally-offset histogram.*

Accordingly, it is respectfully submitted that claim 11 is allowable for essentially the same reasons as claim 6.

With respect to paragraph five-point-three (5.3) of the Final Office Action, claims 12 and 14 were rejected under 35 U.S.C. § 103(a) as unpatentable over the Nier reference, in

view of the Winner reference. It is respectfully submitted that the proposed combination of the Nier and Winner references does not disclose (or even suggest) all of the features of claims 12 and 14.

Claim 12 depends from claim 11, and is therefore allowable for at least the same reasons as claim 11. Claim 14 depends from claim 6, and is therefore allowable for at least the same reasons as claim 6.

With respect to paragraph five-point-four (5.4) of the Final Office Action, claims 13 and 15 were rejected under 35 U.S.C. § 103(a) as unpatentable over the Nier reference, in view of the Winner reference.

Claim 13 depends from claim 11, and is therefore allowable for at least the same reasons as claim 11. Claim 15 depends from claim 6, and is therefore allowable for at least the same reasons as claim 6.

Withdrawal of the rejections of the claims is therefore respectfully requested.

In sum, claims 6 to 8 and 11 to 15 are allowable.

CONCLUSION

In view of the foregoing, it is respectfully submitted that all of the presently pending claims are allowable. It is therefore respectfully requested that the rejections (and any objections) be withdrawn. All issues raised by the Examiner have been addressed, and therefore an early and favorable action on the merits is respectfully requested.

Respectfully submitted,

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